

MidAmerican Energy Company

Energy Efficiency Plan

Docket No. EEP-2012-0002

2018 Annual Report

to the

Iowa Utilities Board

May 1, 2019



www.midamericanenergy.com/ee

Table of Contents

I.	Executive Summary	1
II.	2018 Electric and Natural Gas Savings Totals	1
III.	2018 Spending Totals	2
IV.	Savings/Spending Results for Residential and Nonresidential Programs.....	3
V.	Five-Year Plan Progress (2014-2018)	4
VI.	2018 Regulatory Compliance Filings	4
VII.	2018 Successes and Administration Issues.....	5
VIII.	Key Challenges in 2018	8
IX.	Key Activities Planned in 2019	8
X.	Evaluation, Monitoring and Verification Plan.....	8
XI.	Settlement Agreement Updates.....	10
XII.	Programs	11
A.	Residential Equipment	11
B.	Residential Assessment.....	14
C.	Residential New Construction	17
D.	Residential Behavioral	19
E.	Residential Load Management	22
F.	Residential HVAC Tune-Up.....	24
G.	Nonresidential Equipment	25
H.	Commercial Energy Solutions.....	28
I.	Nonresidential Energy Analysis Program (Industrial Partners).....	32
J.	Commercial New Construction Program.....	36
K.	Nonresidential Load Management	41
L.	Appliance Recycling.....	44
M.	Upstream Retail Lighting	47
N.	Low-Income Program	49
O.	Multifamily Housing Program	54
P.	Agricultural Assessment Program.....	57
Q.	Education Program.....	59
R.	Trees Program.....	66

MIDAMERICAN ENERGY COMPANY 2018 IOWA ENERGY EFFICIENCY ANNUAL REPORT

I. Executive Summary

MidAmerican Energy Company (“MidAmerican”) presents its 2018 Annual Report on energy efficiency programs and activities. The 2018 results are for the fifth year of MidAmerican’s 2014-2018 Iowa Energy Efficiency Plan as modified by Iowa Utilities Board (“Board”) order issued April 12, 2018,¹ in Docket No. EEP-2012-0002 (“Plan”). MidAmerican’s 2014-2018 Plan continues to include a comprehensive set of programs that will help Iowa customers continue to manage energy use, reduce cost, protect the environment, and increase business competitiveness. The majority of the Plan program offerings are similar to those in the originally approved plan, such as home assessments, Residential Behavioral, equipment rebates for homes and businesses, Commercial Energy Solutions, Commercial New Construction, Industrial Partners, and low income services.²

Overall electric savings achieved by MidAmerican’s Plan programs in 2018 were 102 percent of the goal and natural gas programs achieved 100 percent of the modified savings goal. Total electric and natural gas savings recognized from all programs in 2018 were 361,687,214 kWh and 7,681,105 therms. Program savings and spending summaries are provided below.

II. 2018 Electric and Natural Gas Savings Totals

- Electric savings were 361,687,214 kWh, which were 102 percent of overall modified 2018 year-end savings and 1.53 percent of MidAmerican’s annual retail electric sales in Iowa.

¹ *In Re: MidAmerican Energy Company*, Order Approving Settlement Agreement and Modification of Energy Efficiency Plan and Requiring Filing, April 12, 2018 (Docket Nos. EEP-2012-0002, TF-2018-0025).

² The Residential Heating, Ventilating and Air Conditioning (HVAC) Tune-Up offering was discontinued for 2018 – 2018 as part of the April 12, 2018 Board-approved Plan modification. *See* note 1.

- Peak demand kW savings were 353,637 kW, which were 82 percent of overall modified 2018 year-end savings.
- Natural gas therm savings were 7,681,105 therms, which were 100 percent of overall modified 2018 year-end savings and 1.10 percent of MidAmerican's annual retail natural gas sales in Iowa.
- Natural gas Peak therm savings were 97,213 therms, which were 109 percent of overall modified 2018 year-end savings.

III. 2018 Spending Totals

- Electric program spending was \$78,745,775, which was 83 percent of overall modified 2018 spending.
- Natural gas program spending was \$26,851,971, which was 71 percent of overall modified 2018 spending.
- Total actual electric and natural gas program spending was \$105,597,746, which was 80 percent of total modified 2018 spending.

IV. Savings/Spending Results for Residential and Nonresidential Programs

Residential Programs

- Total electric and natural gas savings for residential programs were 123,954,080 kWh and 5,646,248 therms respectively, which represented 80 percent of the residential 2018 modified electric savings and 107 percent of the residential 2018 modified natural gas savings.
- Total electric and natural gas savings for residential programs from 2014-2018 were 585,622,488 kWh and 26,476,263 therms respectively, which represented 86 percent of the residential 2014-2018 modified electric savings and 104 percent of the residential 2014-2018 modified natural gas savings.
- Total spending for residential programs was \$44,046,351, which represented 74 percent of the residential modified 2018 spending.
- Total spending for residential programs from 2014-2018 was \$257,574,673, which represented 91 percent of the residential 2014-2018 modified spending.

Nonresidential Programs

- Total electric and natural gas savings for nonresidential programs were 237,733,133 kWh and 2,034,858 therms respectively, which represented 120 percent of the nonresidential 2018 modified electric savings and 83 percent of the nonresidential 2018 modified natural gas savings.
- Total electric and natural gas savings for 2014-2018 from nonresidential programs were 1,033,054,925 kWh and 9,326,025 therms respectively, which represented 133 percent of the nonresidential 2018 modified electric savings and 86 percent of the nonresidential 2018 modified natural gas savings.

- Total spending for nonresidential programs was \$58,409,038, which represented 83 percent of the nonresidential 2018 modified spending.
- Total spending for nonresidential programs from 2014-2018 was \$300,026,273, which represented 102 percent of the nonresidential 2014-2018 modified spending.

V. Five-Year Plan Progress (2014-2018)

- Electric savings for 2014-2018 were 1,618,677,414 kWh, which were 111 percent of the overall modified electric savings for the five-year period.
- Natural gas savings for 2014-2018 were 35,802,288 therms, which were 99 percent of the overall modified natural gas savings for the five-year period.
- Electric program spending for 2014-2018 was \$413,579,757, which was 100 percent of the overall modified electric spending for the five-year period.
- Natural gas program spending for 2014-2018 was \$157,521,772, which was 90 percent of the overall modified natural gas spending for the five-year period.
- Total program spending for 2014-2018 was \$571,101,529, which was 97 percent of the overall modified spending for the five-year period.

VI. 2018 Regulatory Compliance Filings

- January 31, 2018: Compliance Filing Key Program Changes
- February 23, 2018: Joint Motion for a Board Order to Hold Procedural Schedule in Abeyance
- February 28, 2018: Reconciliation of Energy Efficiency Cost Recovery Factor
- March 20, 2018: Joint Motion to Approve Stipulation and Agreement
- March 23, 2018: Evaluation, Measurement and Verification Report – Multifamily Housing Program

- April 20, 2018: Compliance and Informational Filing Request for Plan Modification – Revised Exhibits
- April 25, 2018: Request for Waiver
- April 30, 2018: 2018 1st Quarter Report filed with stakeholders
- May 1, 2018: 2016 Energy Efficiency Annual Report and Exhibits
- July 17, 2018: 2018 2nd Quarter Report filed with stakeholders
- September 26, 2018: Evaluation, Measurement and Verification Reports
- October 5, 2018: Energy Efficiency Transition Plan
- October 31, 2018: 2018 3rd Quarter Report filed with stakeholders
- November 7, 2018: Removal and Substitution of Individuals from Service List
- November 7, 2018: Evaluation, Measurement and Verification Report – Residential Behavioral Program

In addition to the 2018 filing listed above under Docket No. EEP-2012-0002, MidAmerican also filed several documents related to its 2019-2023 Energy Efficiency Plan under Docket No. EEP-2018-0002.

VII. 2018 Successes and Administration Issues

Residential Programs

- 8,276 central air conditioners were rebated in 2018, which was 155 percent of goal. Central air conditioners provided 4.6 million kWh or 30 percent of the achieved total electric savings for the Residential Equipment program.
- 8,270 efficient furnace fans were rebated in 2018, which was 151 percent of goal. Efficient furnace fans provided 3.9 million kWh or 26 percent of the achieved total electric savings for the Residential Equipment program.

- 12,972 natural gas furnaces were rebated in 2018, which was 95 percent of goal. Natural gas furnace rebates provided 2,216,953 therms or 92 percent of the total achieved natural gas savings for the Residential Equipment program.
- The Residential Behavioral Program had a 12 percent increase in kWh and five percent decrease in therms over 2017 savings. 866,368 Home Energy Reports were mailed to Iowa customers, and 16,817 electronic reports were sent to customers who opted-in to the monthly email version of the report.
- In the Residential Assessment Program, MidAmerican continued its partnership with the City of Urbandale to provide insulation incentives along with the City of Urbandale's zero interest rate revolving loan program. MidAmerican has completed 24 assessments for customers enrolling in this program.
 - 6,893 on-site assessments were completed in 2018, which was 110 percent over the goal.
 - 8,902 insulation measures were completed, which was 197 percent of the goal and represents a 42 percent conversion rate.
 - 1,073 customers participated received a bonus rebates from the program. This was a 119 percent increase over 2017 participation and 86 percent of the goal.
 - Over 7,800 customers logged into the online web tool and interacted with the energy savings tips.
- In the Residential Appliance Recycling Program, 5,670 residential appliances were recycled, which was 67 percent of the total goal and 529 nonresidential appliances were recycled, which was 203 percent of the total goal.

- In the Upstream Lighting Program, 1,573,975 LEDs were sold which was a 265 percent increase over 2017 LED sales. Additionally, the program contractor made over 2,700 visits to participating retailers and suppliers.
- In the Residential Low-Income Program, the expansion of the Green Iowa AmeriCorps supplemental weatherization pilot was launched in 2017.

Nonresidential Programs

- In 2018, LED lighting measures continued to be some of most popular features of many of the nonresidential programs. LED lighting projects are being completed at a much faster pace due to lower measure costs and in anticipation of new lighting standards scheduled for implementation in 2020.
 - Prescriptive LED lighting measures accounted for over 45 million kWh or 90 percent of electric savings achieved in the Nonresidential Equipment program, 27 million kWh or 63 percent of electric savings achieved in the Commercial Energy Solutions program, and 55 million kWh or 69 percent of electric savings achieved in the Industrial Partners program.
 - HVAC measures continue to contribute significantly to both electric and natural gas savings across all nonresidential programs.
- In the Industrial Partners program, 295 projects were installed, of which 283 were electric, eight were gas and four dual fuel projects. This compared to the plan goal of 83 electric industrial projects and seven natural gas industrial projects. Installed projects included improvements to compressed air, HVAC, refrigeration, variable speed drives, lighting, process and building shell systems.
- In the Commercial New Construction program, 82 projects were completed, which

was 126 percent of the goal and 108 new projects were started in 2018.

VIII. Key Challenges in 2018

- Homes and businesses have an increasing number of existing CFLs or LEDs installed in high use sockets which reduces the amount of bulbs installed during assessments.
- In the Upstream Lighting program, the market continues to see non-ENERGY STAR LEDs at lower prices, sharing shelf space with program-incentivized products. These discount LEDs do not perform as well and can lead to customer dissatisfaction. The program continued its focus on the benefits of ENERGY STAR LEDs through in-store associate training and promotional materials.
- Achieving Industrial Partner natural gas savings continues to be a challenge due to the relatively small population of industrial participants who purchase natural gas from MidAmerican.

IX. Key Activities Planned in 2019

- MidAmerican will educate customers and trade allies about the programs and measures include in its approved 2019-2023 energy efficiency plan. Additionally, MidAmerican will assist in educating customers and trade allies on how to maximize the rebates received each year due to the new program and customer caps included in the 2019-2023 energy efficiency plan.

X. Evaluation, Monitoring and Verification Plan

In July 2015, MidAmerican contracted with Tetra Tech to perform process and impact evaluations of its Iowa programs included in the 2014-2018 plan. All program evaluations for the 2014-2018 Plan have been completed. Tetra Tech provided a report for each program that documents the program design, background, methods, and key findings. The report also

includes a market transformation section that summarizes market response indicators collected as part of this evaluation (an Iowa stakeholder suggestion). Additionally, the report documents sources for claimed (ex-ante) impact results, verified and net savings (where applicable), and recommendations for measure and program level savings adjustments and process adjustments. MidAmerican has established a tracking worksheet of the recommendations included in each report. (See Exhibit H – EM&V Recommendations) Each recommendation has been prioritized, high, medium or low, to assist in providing direction to MidAmerican as to which recommendations should be addressed first. MidAmerican has completed its initial review of all high priority recommendations and for those recommendations not addressed in 2018. MidAmerican is currently finalizing the appropriate action needed for those recommendations which will be implemented in 2019 and beyond.

XI. Settlement Agreement Updates

MidAmerican continued its efforts in 2018 to address and implement the additional Plan commitments included in the Non-Unanimous Partial Settlement Agreement filed with the Board on August 26, 2013, in Docket No. EEP 2012-0002 with its stakeholders. During the 2018 Fall Operations meeting held on November 5, 2018, MidAmerican provided stakeholders with a progress report for each of the items included within the Settlement Agreement. Exhibit I – Settlement and Order Requirements includes the progress report and provides a summary of MidAmerican’s progress toward each item in the Settlement Agreement as of November 5, 2018.

XII. Programs

A. Residential Equipment

The Residential Equipment program promotes the purchase of energy-efficient equipment by residential customers in new and existing homes. The program provides customers with rebates to offset the higher purchase cost of efficient equipment. Targeted equipment includes heating, cooling, and appliance measures. Rebates for heating and cooling equipment were made conditional upon quality installation by a SAVE (System Adjustment & Verified Efficiency) certified contractor through September 30, 2018. Effective October 1, 2018, MidAmerican no longer required SAVE testing.

2018 Results Compared to Plan and Budget

Total electric and natural gas savings for the Residential Equipment program were 15,176,169 kWh and 2,413,517 therms respectively. These figures were 62 percent of total 2018 electric savings and 87 percent of total 2018 natural gas savings. Total spending for the Residential Equipment program was \$15,299,896, which is 63 percent of the 2018 budgets.

Key Program Successes and Activities in 2018

Residential Equipment program highlights for 2018 include the following:

- 8,276 central air conditioners were rebated in 2018, which was 155 percent of goal. Central air conditioner provided 4.6 million kWh or 30 percent of the achieved total electric savings for the program.
- 8,270 efficient furnace fans were rebated in 2018, which was 151 percent of goal. Efficient furnace fans provided 3.9 million kWh or 26 percent of the achieved total electric savings for the program.
- 960 air source heat pumps were rebated in 2018, which was 51 percent of goal. Air

source heat pumps provided 1.9 million kWh or 13 percent of the achieved total electric savings for the program.

- 280 ground source heat-pumps were rebated in 2018, which was 41 percent of the goal. Ground source heat pumps provided 3.6 million kWh or 24 percent of the achieved total electric savings for the program.
- 12,972 natural gas furnaces were rebated in 2018, which was 95 percent of goal. Natural gas furnaces provided 2,216,953 therms or 92 percent of achieved total natural gas savings for the program.

Key Program Challenges in 2018

- Clothes washer measures were no longer eligible for rebates in 2018 due to new ENERGY STAR standards. Clothes washers were budgeted to provide 2018 energy savings of 3,591,976 kWh and 189,602 therms. Removal of clothes washers as an available measure in 2018 accounted for 39 percent of the short fall of electric savings and 51 percent of the short fall of natural gas savings projected for the program in 2018.
- 2,398 ENERGY STAR refrigerators were rebated in 2018, which was 24 percent of goal. The shortfall of refrigerators rebated was responsible for four percent of the difference from electric savings.
- 15 heat pump water heaters were rebated in 2018, which was 22 percent of goal. The shortfall of heat pump water heaters was responsible for one percent of the difference from electric savings. During 2018, MidAmerican promoted heat pump water heater rebates in collaboration with A.O. Smith at Lowes stores throughout our service territory using point-of-sale signage in an attempt to reverse a trend of declining

participation. 27 heat pump water heaters were rebated in 2017 and 39 were rebated in 2016 so the in-store promotion did not improve performance of the measure. The technology is best suited for customers without natural gas service and this constraint, which is also a program eligibility requirement, restricts the number of potential participants since natural gas service is widely available in Iowa. Still, with additional promotion, we had hoped to reverse the trend of declining participation.

Promotion

MidAmerican promoted the Residential Equipment program as follows:

- Bill inserts in April 2018
- Social media posts throughout the year
- AdWords Internet campaign ran June - October
- Various customer and community safety/health fairs and other events sponsored by trade associations, including the Iowa Geothermal show
- Home Shows in Quad Cities, Des Moines, Sioux City and Sheldon
- Point-of-sale promotion of heat pump water heaters at all Iowa Lowes stores April – December.
- Trade ally outreach to small and large retail appliance stores in April
- Numerous visits to trade allies to conduct lunch and learn sessions throughout the year

Key Activities Planned in 2019

- The Residential Equipment program will continue in 2019 as part of MidAmerican's 2019-2023 energy efficiency plan.

B. Residential Assessment

The Residential Assessment program promotes efficiency strategies for existing residential customers. The program provides online energy assessments, more extensive on-site energy assessments, direct installation of low-cost efficiency measures, and recommendations for additional measures. Customers participating in the on-site energy assessment are eligible for a bonus rebate when at least three recommended measures are installed within 12 months after the assessment or by March 31, 2019, whichever comes first.

The Residential Assessment program also provides customers with an online self-directed home energy analysis. Customers can view usage information, comparison to similar homes and can complete a home analysis to receive customized energy efficiency tips.

2018 Results Compared to Plan and Budget

Total electric and natural gas savings for the Residential Assessment program were 4,934,566 kWh and 821,911 therms respectively. These results are 158 percent of total 2018 modified electric savings and 137 percent of total 2018 modified natural gas savings. Total spending for the Residential Assessment program was \$7,560,656 which was 118 percent of the 2018 modified budgets.

2018 Key Program Successes and Activities

Residential Assessment program highlights for 2018 include the following:

- 6,893 on-site assessments were completed in 2018, which was 110 percent of the goal.
- 8,902 insulation measures were rebated, which was 197 percent of the goal and represents a 42 percent conversion rate.
- 47,943 LEDs were installed during an assessment, which was 97 percent of the goal.

- 1,078 customers received bonus rebates. This was a 119 percent increase over 2017 participation and 86 percent of the goal.
- The program implementation contractor scheduled HomeChecks to all eligible customers in less than four weeks after the initial customer request.
- MidAmerican continued its partnership with the City of Urbandale to provide insulation incentives along with the City of Urbandale's zero interest rate revolving loan program. In the final pilot year three (September 2017-April 2018), the City of Urbandale targeted older homes in lower income areas. MidAmerican completed 8 assessments for customers enrolling in this program.
- Over 7,800 customers logged in to the online home energy assessment. Of those logins, 67 percent began the home energy assessment and interacted with the energy-saving tips.

Key Program Challenges in 2018

- Homes increasingly have existing CFLs or LEDs installed in high use sockets which reduces the amount of bulbs installed during the assessment.

Promotion

MidAmerican promoted the Residential Assessment program as follows:

- Social media including Facebook and Twitter throughout the year.
- Bill messaging in May
- Power + customer email newsletter in April and July.
- At Your Service printed customer newsletter in February, May and September.
- Bill inserts in June.
- Direct mail post cards promoting insulation rebates to customers who completed a

HomeCheck and had insulation improvements recommended but had not submitted insulation rebate applications. These post cards went out in June and July.

- The online home energy assessment was promoted in Home Energy Reports throughout the year.
- Trade shows including:
 - Des Moines Home and Garden Show
 - Des Moines HBA Home and Remodeling Show
 - Siouxland Home Show
 - Quad Cities Home Show

Key Activities Planned in 2019

- The Residential Assessment program will continue in 2019 as part of MidAmerican's 2019-2023 energy efficiency plan with the following modifications:
 - Transition the program from an onsite to an online home energy assessment with an energy efficiency kit.

C. Residential New Construction

The Residential New Construction program promotes the construction of energy efficient new housing; addressing both the building shell and the equipment used inside the home. The program provides builders with financial incentives to offset the higher cost of energy efficient construction. The program includes an option for ENERGY STAR® certified homes and an option for MidAmerican's EnergyAdvantage Advanced Builder Option Package (ABOP) homes. Both options require a Home Energy Rating System (HERS) rating.

2018 Results Compared to Plan and Budget

Total electric and natural gas savings for the Residential New Construction program were 3,722,045 kWh and 847,521 therms respectively. These figures were 78 percent of total 2018 electric savings and 207 percent of total 2018 natural gas savings. Total spending for the Residential New Construction program was \$4,500,650, which was 74 percent of the 2018 budgets.

Key Program Successes and Activities in 2018

Residential New Construction program highlights for 2018 include the following:

- 868 combination electric and natural gas homes were rebated in 2018, which was 41 percent of the goal.
- 713 natural gas-only homes were rebated in 2018 which was 133 percent of the goal.
- 229 electric-only homes were rebated in 2018 compared to 105 in 2017. Of the 229 electric-only homes, 34 were electric heat and electric cool and 195 were electric cool only.

Key Program Challenges in 2018

- Despite significant improvement in the total number of electric-only homes, only 34 homes with electric heat and electric cool were rebated through the program against a goal of 188. This represented only a modest improvement over the 32 electric heat and electric cool homes which were rebated in 2017.
- Builders continued to pursue rebates through the Residential Equipment program rebates to avoid the Home Energy Rating System (HERS) inspection regimen.

Promotion

MidAmerican promoted the Residential New Construction program as follows:

- Membership directories of the Cedar Rapids Homebuilders Association (HBA), Des Moines HBA, Sioux City HBA, Iowa City HBA and Quad Cities HBA.
- Various customer, community and other events sponsored by trade associations, including the Iowa Geothermal show.
- Home shows in Des Moines, Quad Cities, Sioux City and Sheldon.
- Builder training events in coordination with Alliant Energy in Ames and Cedar Rapids.

Key Activities Planned in 2019

- The Residential New Construction program will not be offered as part of MidAmerican's 2019-2023 energy efficiency plan.

D. Residential Behavioral

The Residential Behavioral program is designed to encourage energy savings through behavioral modification. The program provides customers with Home Energy Reports that contain personalized information about their energy use and provide smart ways to make their homes more efficient. Customers are randomly chosen by MidAmerican to participate in the program, but may “opt out” if they do not wish to participate. The Home Energy Reports compare the customer’s energy usage to 100 similarly-situated homes in their area. The reports engage customers and cause them to take action to bring their energy usage in line with similar homes. Customers participating in the program receive six paper reports annually and can opt-in to a monthly emailed report.

The program empowers customers to understand their energy usage better and act on this knowledge, resulting in changed customer behavior. Additionally, participation in this program encourages participation in other programs by using the Home Energy Report as a promotional vehicle. By helping customers become more energy efficient and lower their utility bills, the program helps customers understand that decisions they make regarding energy usage are important and relevant to their total monthly energy usage.

2018 Results Compared to Plan and Budget

Total electric and natural gas savings for the Residential Behavioral program were 38,911,809 kWh and 1,171,230 therms, respectively. These figures were 88 percent of total 2018 electric savings and 104 percent of total 2018 natural gas savings. This represents a 12 percent increase in kWh and five percent decrease in therms over 2017 savings. Total spending for the Residential Behavioral program was \$2,056,178 which is 109 percent of the 2018 budgets.

Key Program Successes and Activities in 2018

Residential Behavioral program highlights for 2018 include the following:

- Over 188,000 customers were active in the program at the end of 2018.
- 866,368 Home Energy Reports were mailed to Iowa customers
- 16,817 emails were sent to customers who opted-in to the monthly email version of the report. The email open rate was 56 percent.
- The original pilot customers' cumulative opt-out rate is 1 percent, which is below the program implementation contractor's national average. The program expansion customers' opt-out rate is 0.5 percent and the backfill opt out-rate is 0.3 percent, both of which are significantly lower than the national average.

Key Program Challenges in 2018

The electric program savings continue to increase each year, but still have not reached modified levels. Reasons for electric savings not meeting modified levels include:

- A modeling change in 2014 has resulted in lingering effects on the savings rate of the program; however, overall electric savings have been rising consistently.
- Overall savings for the legacy group have plateaued due to natural customer attrition.
- With each new backfill group, there are fewer customers with the highest potential for savings. The program should result in savings from these new groups, but not a level of savings comparable to the legacy and expansion groups.

Promotion

- The Home Energy Report is an "opt out" rather than "opt in" program. Therefore, no promotional efforts were utilized to obtain participants. However, the reports themselves promote energy saving tips and behaviors, other MidAmerican energy

efficiency programs, and utilization of a customer Web portal which allows for more in-depth energy savings planning and provides additional strategies and tips.

Key Activities Planned in 2019

- The Residential Behavioral program will continue in 2019 as part of MidAmerican's 2019-2023 energy efficiency plan with the following modifications:
 - All customers except for the latest backfill group will be reduced to two reports per year and Tetra Tech will continue to study the original persistence group.

E. Residential Load Management

SummerSaverSM is MidAmerican's residential air conditioner load control program. The program provides financial incentives to residential customers in exchange for allowing MidAmerican to control their central air conditioning on hot summer days when the Company forecasts a system peak demand or operating conditions require use of the program.

Central air conditioners and air source heat pumps in owner-occupied single-family homes are eligible for the program. During cycling events, a small load control receiver (LCR) operates by overriding the customer's thermostat, which in turn shuts down the compressor. However, the indoor fan continues to operate, providing air circulation.

A relatively mild summer did not warrant the need for the Midcontinent Independent System Operator or MidAmerican to call for a SummerSaver cycling event in 2018. However, all participants were required to participate in a certification event to verify the programs' ability to reduce load.

2018 Results Compared to Plan and Budget

Total electric savings for the Residential Load Management program in 2018 were 18,146 kW of system peak demand and 36,292 kWh. These figures represent 36 percent of total electric kW savings and 11 percent of total kWh savings. The demand savings were less than expected due to the temperatures on the day of certification being significantly cooler than typical for a day of program operation. Total spending for the SummerSaverSM program in 2018 was \$2,455,405 which is 79 percent of the 2018 budget.

Key Program Successes and Activities in 2018

Residential Load Management program highlights for 2018 include the following:

- 62,804 LCRs operating in the field during 2018.
- Participating customers received \$1,884,498 in rebates in the form of bill credits on their utility bills for participating in 2018.
- 1,730 aged LCRs were replaced, compared to a goal of 1,500.

Key Program Challenges in 2018

- No cycling events were called in 2018.

Promotion

MidAmerican promoted the Residential Load Management program as follows:

- Direct mail solicitation to customers who moved using *Welcome Home* cards. *Welcome Home* cards are sent to customers that move into a home that already has an LCR installed. The card offers the new homeowner automatic enrollment in the program.
- Promotion as part of the MidAmerican's suite of energy efficiency programs through print, social media and on MidAmerican's website.

Key Activities Planned in 2019

- The Residential Load Management program will continue in 2019 as part of MidAmerican's 2019-2023 energy efficiency plan with the following modification:
 - A smart thermostat option will be introduced to customers interested in participating in this program

F. Residential HVAC Tune-Up

The Residential HVAC Tune-Up program promotes the proper maintenance and operation of heating and cooling systems by residential customers in existing homes. The program was suspended in 2017 due to lack of participating trade allies and customer interest; the budgeted energy savings were reduced to zero kWh and zero therms through MidAmerican's plan modification.

There were two paths to participate in prior program years:

- The equipment tune-up measure was available to customers during their regularly scheduled maintenance visit by participating contractors.
- The ductwork improvement measure was available to customers during an equipment tune-up or when installing a new piece of equipment with a participating contractor.

The program provided customers with rebates to offset the cost of increasing the efficiency of existing equipment and ductwork. Targeted equipment included heating and cooling equipment and ductwork.

2018 Results Compared to Plan and Budget

Total electric and natural gas savings for the Residential HVAC Tune-Up program were 0 kWh and 0 therms, respectively. Program budgets for spending and energy savings were reduced to zero for 2018 through MidAmerican's plan modification.

Key Activities Planned in 2019

- The Residential HVAC Tune-Up program will not be offered as part of MidAmerican's 2019-2023 energy efficiency plan.

G. Nonresidential Equipment

The Nonresidential Equipment program promotes the purchase of individual pieces of prescribed high-efficiency equipment by commercial and industrial customers in existing and new facilities. The program addresses the replacement and first-time purchase markets for all measures and primarily the retrofit market for lighting. Participation is largely dealer-driven; that is, equipment dealers promote energy-efficient measures when customers are looking to buy new or replacement equipment. The program offers rebates for a wide range of lighting, heating, ventilation, air conditioning, motors and variable-speed drives, commercial kitchen equipment, and building shell measures. The Nonresidential Equipment program includes a “custom track” to allow customers to implement new technologies and alternate strategies not currently eligible for prescriptive rebates.

Since 2014, MidAmerican has encouraged commercial and industrial customers to participate in the comprehensive assessment programs. Instead of individual nonresidential equipment projects, the comprehensive approach examines all energy saving strategies within the facility to promote additional energy savings. After customers participate in an assessment, subsequent energy efficiency projects are recorded in the appropriate assessment programs rather than the Nonresidential Equipment program.

2018 Results Compared to Plan and Budget

Total electric and natural gas savings for the Nonresidential Equipment program were 50,451,761 kWh and 448,628 therms respectively. These figures represent 39 percent of total 2018 modified electric savings and 51 percent of total 2018 modified natural gas savings. Total Nonresidential Equipment program spending was \$8,450,698; 43 percent of the 2018 modified budgets.

Program Activities in 2018

- 346,964 lighting measures were rebated in 2018, which was 43 percent of the goal and an increase of 27 percent when compared to 2017. Lighting measures provided 92 percent of the achieved total electric savings for the Nonresidential Equipment program. Prescriptive LED lighting measures accounted for 45 million kWh or 90 percent of electric savings achieved by the program. The program provided customer incentives totaling over \$4.9 million for lighting projects.
- 2,918 HVAC measures were rebated in 2018, which was 125 percent of the goal. Electric HVAC measures provided eight percent of the achieved total electric savings for the Nonresidential Equipment program, while natural gas HVAC measures provided 96 percent of achieved natural gas savings for the program.
- 645 high-efficiency furnaces were rebated in 2018, which was 72 percent of the goal. Furnace measures provided 58 percent of the achieved natural gas savings for the program.
- 16,508 custom measures were rebated in 2018, of which 15,481 were LED custom lighting and sensor measures. These LED custom lighting and sensor measures accounted for 9,958,626 kWh and provided customer incentives totaling \$827,687.
- 190 natural gas custom measures were rebated during 2018 compared to only 17 in 2017. Total incentives paid in 2018 were \$318,112 compared to \$131,330 in 2017.
- Variable speed drives showed impressive growth. In 2018, 46 variable speed drives were rebated compared to 5 in 2017. The measure delivered 848,656 kWh in electric savings, representing two percent of the achieved kWh savings for the program.

Key Program Challenges in 2018

- 645 furnaces rebated compared to 947 in 2017. The reduction in the number of furnaces rebated and the reduced rebate paid per furnace decreased incentives paid for furnaces by approximately \$1,000,000 in 2018 compared to 2017.
- 12 boilers were rebated which was 15 percent of the goal. In 2017, eight boilers received rebates.
- The average rebate per lighting measure dropped from approximately \$25 in 2017 to approximately \$14 in 2018, representing a 44 percent reduction. Even though the quantity of lighting measures increased by 27 percent in 2018 compared to 2017, total rebates paid in 2018 dropped to \$4.9 million from \$6.9 million in 2017, representing a 29 percent decrease.

Promotion

MidAmerican promoted the Nonresidential Equipment program as follows:

- Social media posts throughout the year.
- Various trade shows and other events for end users that are sponsored by industry and trade associations, including the Iowa Geothermal Conference and Master Builders of Iowa Winter Conference in Des Moines.
- Numerous visits to trade allies to conduct lunch and learn sessions throughout the year.

Key Activities Planned in 2019

- The Nonresidential Equipment program will continue in 2019 as part of MidAmerican's 2019-2023 energy efficiency plan.

H. Commercial Energy Solutions

The Commercial Energy Solutions (CES) program promotes comprehensive energy efficiency for existing commercial buildings, regardless of size. The program offers services through two program tracks, tailored to the unique needs of commercial customers by size and intention. The two tracks are:

- Track I – Assessments. Customers will receive an energy assessment, information on how their business segment uses energy and recommendations for capital investment projects. Low-cost energy efficient measures may also be installed.
- Track II - Building Optimization. Includes two offerings: Express Building Tune-Up (EBTU), which offers a “find and fix” tune-up method for small commercial buildings and Retrocommissioning (RCx), which offers traditional retrocommissioning strategies for large commercial buildings.

2018 Results Compared to Plan and Budget

The total electric and natural gas savings for the Commercial Energy Solutions program were 43,211,636 kWh and 281,332 therms, respectively. These figures represent 335 percent of total 2018 modified electric savings and 47 percent of total 2018 modified natural gas savings. Total spending for the program was \$11,641,494, which was 83 percent of the 2018 modified budgets.

Key Program Successes and Activities in 2018

- 213,866 lighting measures were installed, which was 427 percent of the goal. Lighting measures provided 85 percent of the total achieved electric savings for the program. LED measures combined for \$3,374,242 in customer incentives and 27,425,408 kWh in savings, which was 63 percent of the total achieved electric

savings. The budget and savings goals for the majority of LED lighting measures were accounted for in the Nonresidential Equipment program. However, when a customer participates in a comprehensive assessment program like CES, the rebates paid and the associated achieved electric savings were recorded in the CES program rather than in the Nonresidential Equipment program.

- 537 electric HVAC measures were installed, which was 170 percent of the goal.
 - 390 natural gas HVAC measures were installed, which was 175 percent of the goal.
- HVAC measures provided 46 percent of the total achieved natural gas savings for the program.

Key Program Challenges in 2018

- Small businesses are often unable to act on recommended upgrades from assessments due to budgetary constraints.
- Qualified Service Providers (QSPs) in Building Optimization services continued to complete fewer projects than anticipated.
- Persuading commercial customers to implement natural gas-saving projects continues to be difficult due to low natural gas prices.

Small Business Lighting Pilot Update

In 2018, the Small Business Lighting Pilot served the Des Moines, Fort Dodge, Iowa City/Coralville and Davenport/Bettendorf markets. The pilot promotes lighting upgrades to LED fixtures and lamps by providing incentives based upon the actual electric savings resulting from a lighting upgrade. This pilot offering is directed towards commercial customers that consume less than 500,000 kWh annually and occupy less than 50,000 square feet. The rebate is paid directly to a qualified Lighting Service Provider (LSP), thus reducing the customer's out-of-pocket costs and providing a stronger incentive for customers to complete upgrades sooner. Contractors enroll to be LSPs by completing training on the program offering, requirements and software tools.

Ten new contractors became LSPs in 2018, bringing the total number to 56. The LSPs completed 294 projects which achieved 5,769,274 kWh of electric savings and provided \$1,008,399 in rebates for small commercial customers.

Promotion

MidAmerican promoted the Commercial Energy Solutions program as follows:

- Business account managers and key account managers continued to educate and encourage their customers to participate in the program. CLEAResult's energy managers performed energy assessments, identified energy-savings opportunities and discussed the best way to maximize these opportunities.
- Print ads, business and community association outreach, and postcard mailings.
- Articles in the *Business Advantage* eNewsletters. The article in the July newsletter showcased the Building Operator Certification program
- Door to door outreach with a focus on communities in MidAmerican's natural gas

service territory.

Key Activities Planned in 2019

- The CES program will not be offered as part of MidAmerican's 2019-2023 energy efficiency plan. Starting in 2019, all CES program participants will be served through the new Nonresidential Energy Solutions program included in MidAmerican's 2019-2023 plan.

I. Nonresidential Energy Analysis Program (Industrial Partners)

The Nonresidential Energy Analysis (Industrial Partners) program continues to promote comprehensive efficiency strategies in existing industrial facilities through a no-cost, scoping-level, facility-wide energy assessment. The program continues to offer an additional resource, an energy manager, who serves as a dedicated technical resource and program expert to help identify energy-saving opportunities and evaluate options, including capital improvement incentives to help maximize program value.

2018 Results Compared to Plan and Budget

Total electric and natural gas savings for the Industrial Partners program were 80,105,588 kWh and 40,502 therms respectively. These figures represent 505 percent of total 2018 electric savings and 45 percent of total 2018 natural gas savings. Total spending for the Industrial Partners program was \$13,899,604 which was 268 percent of the 2018 budgets. LED lighting measures accounted for 55,641,652 kWh or 69 percent of electric savings achieved by the program. The program provided incentives for LED lighting projects totaling \$6,176,978. The budget and savings goals for the majority of LED lighting measures were accounted for in the Nonresidential Equipment program. However, when the customer participates in a comprehensive assessment program like Industrial Partners, the rebates paid and the associated achieved electric savings were recording in the Industrial Partners program rather than in Nonresidential Equipment program.

Key Program Successes and Activities in 2018

- Overall demand for program services was strong in 2018:
 - Record electrical energy savings were achieved in this last year of the 2014-2018 plan

- 19 new industrial sites were enrolled in the program in 2018; there are 225 total active industrial sites in the program
 - 13 energy assessments were conducted in 2018 that identified 79 cost-effective compressed air, variable speed drive, water heating, HVAC, process and lighting opportunities representing more than 8,000,000 kWh and 200,000 therms of savings
 - 295 projects were installed, of which 283 were electric, eight were gas and four were dual fuel projects. This compared to the plan goal of 83 electric industrial projects and eight natural gas industrial projects. Installed projects included improvements to compressed air, HVAC, refrigeration, variable speed drives, lighting, process and building shell systems.
- The program influenced 15 industrial customers to upgrade and optimize their compressed air systems by assisting with the identification, evaluation and implementation of these energy-saving opportunities; collectively, these customers energy consumption was reduced by more than 6,000,000 kWh annually.
- The program assisted one customer install a new steam boiler and regenerative thermal oxidizer to replace the operation of its original steam generator. The original boiler had 2,750 HP of fixed-speed fans, compared to the new boiler, which uses approximately 1,500 HP of fans with the large fans controlled by variable speed drives. Because the original boiler was also used as an oxidizer for volatile organic compounds (VOCs), a large volume of moist air passed through the original boiler, reducing efficiency. The new system incorporated a separate regenerative thermal oxidizer (RTO) to take the load off of the boiler, improving efficiency. Overall the upgrade allowed the customer to

increase production while also reducing annual electric consumption of the boiler system by over 5,000,000 kWh.

Key Program Challenges in 2018

- Motivating natural gas-eligible facilities to implement natural gas-saving projects continues to be difficult due to low natural gas prices. Experience shows that industrial customers invest available capital earmarked for energy efficiency in projects that provide the greatest return on investment.
- Because the largest natural gas consumers in MidAmerican's service territory purchase daily-metered transport natural gas, it is difficult to identify and engage a sufficient number of eligible facilities to meet the gas savings goal; only about five percent of the natural gas delivered to industrial customers is program-eligible, monthly-metered natural gas, the remaining 95 percent is daily-metered transport gas.

Promotion

The program was promoted by MidAmerican's network of key account managers and Nexant energy managers who personally:

- Conducted over 250 meetings with program participants to manage energy efficiency action plans, review the status of active projects, identify new energy-savings opportunities and discuss how to maximize the impact/value of the program's services.
- Delivered and explained energy efficiency materials to customers and explained annual program changes.
- Assisted customers through the program process, including program enrollment, and project identification, evaluation, management and implementation.

- Supported active trade allies by providing information about the advantages of joining the Trade Ally Network and ways to leverage the portfolio of Energy Efficiency programs to grow their businesses.
- To further promote the program, MidAmerican:
 - Maintained relationships across multiple departments in large, participating customer organizations to connect the corporate and site resources necessary to facilitate project discussion and completion.
 - As a result of settlement agreement item #12, MidAmerican Energy was asked by the Office of Consumer Advocate (OCA) to develop a recognition program for Key Account Managers performance in providing customers with education, supporting Energy Efficiency programs and increase participation in our Industrial Partners program. During the first quarter of 2018, the 2017 KAM award were provided to the Key Account leadership team.

Key Activities Planned in 2019

- The Industrial Partners program will not be offered as part of MidAmerican's 2019-2023 energy efficiency plan. Starting in 2019, all Industrial Partner program participants will be served through the new Nonresidential Energy Solutions program included in MidAmerican's 2019-2023 plan.

J. Commercial New Construction Program

The Commercial New Construction program continues to promote the design and construction of high-efficiency commercial buildings, including new building construction and major renovations of existing buildings. The objective of the program is to partner with developers, architects, engineering firms and equipment contractors to help influence projects during the design phase. Energy design assistance and construction incentives are offered to reduce market barriers to incorporating energy efficiency in construction projects. The program is delivered through the assistance of a program implementation contractor, The Weidt Group, who provides energy design assistance, project management and project completion verification. The program offers energy design services through five program tracks, tailored to the needs of different markets. The five tracks include:

- Track I – targets several building types up to 15,000 square feet that can be served effectively through an online energy modeling and decision-making tool.
- Track II – targets projects larger than 15,000 square feet interested in pursuing more standard energy efficiency strategies that are served effectively through an online energy modeling and decision-making tool.
- Track III – targets projects larger than 15,000 square feet interested in pursuing customized energy efficiency strategies.
- Track IV – targets projects interested in pursuing advanced energy efficiency strategies; supports strategies required for Leadership in Energy and Environmental Design (LEED®) – Optimize Energy Performance or ENERGY STAR.
- Track V – Ongoing Performance Track – this track is intended for projects that are exceeding expected energy use and are interested in additional technical and financial assistance for meeting performance metrics two years or more after previous

participation in the Commercial New Construction program.

2018 Results Compared to Plan and Budget

Total electric and natural gas savings for the Commercial New Construction program were 56,720,353 kWh and 1,130,569 therms respectively. These figures represent 181 percent of total 2018 electric savings and 282 percent of total 2018 natural gas savings. Total spending for the program was \$8,513,725 which was 97 percent of the 2018 budgets.

Key Program Successes and Activities in 2018

- 82 projects were completed which was 126 percent of the goal. Twenty-eight projects were large building projects with over 50,000 square feet and 54 projects were small building projects.
- 108 new projects started in 2018 in the program, 47 of which were large building projects over 50,000 square feet, and 61 were small building projects.
- Projects enrolled in 2018 were an average of 65,088 square feet, with a total of 7 million square feet. The 2014-2017 the average building size of new projects was 72,000 square feet, with an average enrollment of 6.9 million square feet enrolled.
- While the program saw its highest enrollment in the Des Moines metro area, the program enrolled projects from all areas of the state, including Council Bluffs, Iowa City, the Quad Cities, Waterloo, Sioux City, Cedar Rapids, and many smaller communities and rural areas.
- A high percentage of the electric savings was due to enrolling a diverse array of projects across all building types, and providing analysis of as many energy efficiency strategies as possible. Custom modeling for non-typical buildings such as refrigerated warehouses and data centers was also key. A high percentage of

the natural gas savings was due to a project with several service hot water heater strategies.

- The commercial sector, which includes offices, hotels and convention centers saw significant growth in participation, growing to 30 projects started in 2018 compared to only 18 in 2016.
- The education sector continued to show support for the program and strong construction activity. Thirty-one K-12 or higher education-related buildings enrolled in 2018 compared to 31 in 2017.
- Eight multifamily housing projects enrolled in the program in 2018.
- The Expanded New Construction Pilot program that launched in late 2015 showed great participation in 2018 with seven projects completed resulting in savings of 565,309 kWh and 21,044 therms. In addition, there are 8 active pilot projects with projected savings of 1,025,395 kWh and 7,820 therms to be completed in 2019. The goal of the pilot program was to encourage higher levels of program participation by customers that may not otherwise be eligible to participate in this program. The program discontinued enrollments at the end of 2017. Based on the findings of the pilot, the Commercial New Construction program will continue to enroll core and shell projects and tenant build out projects that have a mechanical system installation.
- Eight architecture, engineering, development, and construction firms received a training seminar at their offices.

Key Program Challenges in 2018

- While multifamily projects saw increased enrollment, developers are sensitive to first cost, and encouraging investment in energy systems remained a challenge. The

2019-2023 plan directly addresses the needs of multifamily developers by providing electric incentives on a sliding scale on a per unit basis.

Promotion

- Joint-utility promotional efforts with Interstate Power and Light Company (IPL) and Black Hills Energy Company (BHE) included:
 - Print Ads included in the winter, spring, summer and fall issues of *ia architect* magazine.
 - A booth at the 2018 Iowa American Institute of Architects Convention in Des Moines, Iowa. At this event, recipients of the 2018 Excellence in Energy Efficient Design Award also were recognized for their outstanding efforts in reducing energy use through joint-utility Commercial New Construction activities. Two seminars were presented during the convention, one regarding windows and daylighting: A Shifting Perspective on Energy and Windows, and a second on how strategies to achieve beyond energy code savings are changing: Technology Forward: Lighting a Path Through the Future of Energy Codes.
- Lunch and learn sessions were conducted with architecture and engineering firms; these sessions were approved for one Continuing Education Unit for LEED® Accredited Professionals. Additional meetings were held with development and construction firms to educate them on the benefits of the program.
- Program promotion and networking with the architecture community occurred at multiple events and meetings for organizations including: American Institute of Architecture, Iowa Women in Architecture, United States Green Building Council

Iowa, Iowa Architectural Foundation, Design-Build Institute of American, Iowa Chapter and the Central Iowa Architects Council.

Key Activities Planned in 2019

- The Commercial New Construction program will continue in 2019 as part of MidAmerican's 2019-2023 energy efficiency plan with the following modifications:
 - The program will provide incentives on electric savings only, no gas incentives. The energy modeling tool will continue to provide both electric and gas savings on all projects.
 - Discontinued the Ongoing Performance track.
 - New multifamily incentive scale designed to pay per unit based on savings achieved above code.

K. Nonresidential Load Management

The Nonresidential Load Management program provides large nonresidential customers with financial incentives to reduce electricity use during MidAmerican's system peak hours. MidAmerican contracts with customers to reduce at least 250 kilowatts of demand by shedding load completely without replacement, shifting load to nonpeak periods, and/or generating power on-site to replace the curtailed power. Events may be triggered either by the Midcontinent Independent System Operator or tariff provisions in MidAmerican's Rider CS. Nonresidential Load Management is a mature program, as MidAmerican and its predecessor companies have offered it for many years, and most participants have been involved for multiple years.

MidAmerican provides information to customers regarding curtailments, curtailment strategies and analysis of load data via key account managers and an interactive web application. Participants are required to use MidAmerican's internet-based curtailment event manager application that provides notice of curtailment events, allows monitoring of performance in near-real time, and includes access to data and energy analysis modules on a year-round basis to help customers actively manage energy use. Each participant's overall performance is evaluated at the end of the curtailment season.

2018 Results Compared to Plan and Budget

Total electric savings for the Nonresidential Load Management program were 261 MW of system peak demand. This figure represents 106 percent of total 2018 modified peak demand kW savings. Total spending for the Nonresidential Load Management program was \$12,512,161, which is 83 percent of the 2018 modified budget.

Key Program Successes and Activities in 2018

- One curtailment event was called on June 29, 2018 for Rider CS tariff condition (c), the high temperature for the day across the Company's service territory is expected to exceed the 30-year historic annual average summer peak temperature and the projected system peak demand is expected to exceed 98 percent of the Company's historic system peak demand. One of the three rotating groups was called to participate, See Exhibit J for more details about this certification event.
- 107 customers participated in the program.
- 29 contracts were renewed or extended for one year, accounting for a net decrease of 5,900 kW from 2017.
- Three contracts were either terminated or not renewed, accounting for a reduction of 1,075 kW of curtailable load.
- 15 contracts were amended for the purpose of changing contract curtailment load accounting for a net decrease of 1,730 kW of curtailable load.
- No curtailment events were called by MISO in 2018. Certification events were conducted for participants not called in the event on June 29 to test their ability to curtail their contracted curtailable load. See Exhibit J for more details about these certification events.

Key Program Challenges in 2018

- MISO did not issue any curtailment events. One event was triggered by Rider CS, and only one of the groups of participants were called to participate.

Promotion

MidAmerican promoted the Nonresidential Load Management program with:

- Key account managers and one-on-one meetings with prospective participants.
- A program brochure, tariff and contract were distributed to prospective participants that clearly explained the program, customer requirements, financial incentives and program compliance. A program-specific web page also is available to help promote the program.

Key Activities Planned in 2019

- The Nonresidential Load Management program will continue in 2019 as part of MidAmerican's 2019-2023 energy efficiency plan with the following modifications:
 - Participants must provide their actual 24/7 available capacity on a daily-basis throughout the entire year due to MISO tariff changes approved on February 20, 2019. MidAmerican will create a new procedure to capture the actual physical availability of each participant.

L. Appliance Recycling

The Appliance Recycling program encourages customers to stop using old, inefficient refrigerators, freezers and room air conditioners, and helps them dispose of the old units in an environmentally responsible manner. The program provides rebates to customers participating in the program and provides free pick up and disposal of old working appliances. To be eligible for program services and rebates, appliances must be working and refrigerators and freezers must be at least 10 cubic feet in size. MidAmerican implements this program through a third-party contractor specializing in recycling appliances.

2018 Results Compared to Plan and Budget

Total electric savings for the Residential Appliance Recycling program were 4,923,023 kWh, which was 56 percent of the total 2018 electric savings. Total spending for the Residential Appliance Recycling program was \$928,615, which was 45 percent of the 2018 budget.

Total electric savings for the Nonresidential Appliance Recycling program was 356,077 kWh, which was 136 percent of the total 2018 electric savings. Total spending for the Nonresidential Recycling program was \$65,636, which was 104 percent of the 2018 budget.

Key Program Successes and Activities in 2018

The Appliance Recycling program highlights for 2018 include the following:

- 5,670 residential appliances were recycled, which was 67 percent of the total goal.
- 529 nonresidential appliances were recycled, which was 203 percent of the total goal.
- A rotating Saturday pick-up schedule was added throughout MidAmerican's service territory.

Key Program Challenges in 2018

- Difficulty retaining drivers due to the physical nature of the job.
- Difficulty in determining and implementing the most effective mix of promotional resources and messaging to use during the year to increase participation in and awareness of this program.

Promotion

MidAmerican promoted the Appliance Recycling program as follows:

- Bill inserts sent to residential customers in April.
- Social media such as Facebook and Twitter and on MidAmerican's website.
- Newspaper ads that ran throughout the year.
- Adwords internet campaign that ran June through October
- Over 144,000 ad impressions and 2,343 customers were directed to the appliance recycling page.
- Article in customer newsletters sent via email and in customer bills
- Outreach with small business appliance stores promoting the program in the spring.
- Outreach with property managers promoting the program in October.
- City partnerships with Des Moines, Iowa City and Council Bluffs that have information on their website about MidAmerican's Appliance Recycling program.

Key Activities Planned in 2019

- The Appliance Recycling program will continue in 2019 as part of MidAmerican's 2019-2023 energy efficiency plan with the following modifications:
 - Nonresidential business customers will no longer be eligible to participate in the program. However, multifamily complexes will be able to participate in the

program since the appliances being recycling are from the individual units.

M. Upstream Retail Lighting

Upstream Retail Lighting is a joint-utility program that promotes the purchase of energy-efficient light emitting diodes (LEDs). The program provides instant incentives to discount the retail price of energy efficient lighting at participating upstream suppliers and retailers. It is marketed as Be Bright.

2018 Results Compared to Plan and Budget

Total electric savings for the Upstream Retail Lighting program in 2018 were 48,650,242 kWh, which was 81 percent of the total 2018 modified electric savings. The total program spending was \$2,975,145 which is 73 percent of the 2018 modified budget.

Key Program Successes and Activities in 2018

Upstream Retail Lighting program highlights for 2018 include the following:

- 1,573,975 LEDs were sold which was a 265 percent increase over 2016 LED sales.
- The program contractor made over 2,700 visits to participating retailers and suppliers.

Key Program Challenges in 2018

- The program continues to see non-ENERGY STAR LEDs at lower prices sharing shelf space with program incentivized products. These discount LEDs do not perform as well and can lead to customer dissatisfaction. The program continued its focus on the benefits of ENERGY STAR LEDs through in-store associate training and promotional materials.

Promotion

MidAmerican promoted the Upstream Lighting program as follows:

- Through 311 formal training events and 71 in-store demonstrations provided to

retailers and suppliers by the program contractor.

- In Powersource, MidAmerican's bi-weekly employee newsletter, for the entire year.
- On Facebook and Twitter throughout the year.
- In Power +, MidAmerican's monthly customer email, in March and July.
- In the April Home Energy Reports.

Key Activities Planned in 2019

- The Upstream Retail Lighting program will not be offered as part of MidAmerican's 2019-2023 energy efficiency plan.

N. Low-Income Program

The Low-Income program provides financial incentives and education to encourage energy efficiency in existing low-income housing. The program is delivered through four separate components to meet the needs of different customer segments.

The first component, weatherization, encourages comprehensive energy efficiency improvements in existing low-income housing by providing free energy assessments and free on-site installation of heating, water heating, lighting, refrigeration, and insulation measures. The Iowa Department of Human Rights (IDHR), which manages a network of community action program (CAP) agencies, delivers the program by identifying qualifying households and delivering assessments and weatherization services. The Low-Income program supplements funding provided by the Department of Energy's Weatherization Assistance Program through a long-term contract with IDHR. The program also includes an education component for Low-Income Home Energy Assistance (LIHEAP)-eligible customers and a multifamily and institutional housing component.

The second component, Energy Wise, is an education component of the program. Participating CAP agencies recruit Energy Wise Program workshop participants through day-to-day interactions with their LIHEAP clients. Each household that attends the training receives a take-home Energy Wise home savings kit with these energy saving measures:

- Three 9-watt LEDs.
- One high-efficiency showerhead – 1.5 gallons per minute (gpm).
- One faucet aerator for both the kitchen (1.5 gpm) and bathroom (1.0 gpm).
- A furnace filter alarm for furnace or air conditioner.
- Rope caulk for weather stripping around doors, windows and other openings.
- A digital thermometer to test temperature in a room, of the hot water, and inside the

refrigerator and freezer.

- A water-flow measurement bag.
- A window insulator kit.

The third component is a Home Energy Report program for a select number of eligible customers. The reports are tailored to include low cost and no cost energy efficiency tips.

The fourth component, multifamily, includes institutional housing and emergency shelters. The multifamily component is a joint utility program and is administered by The Energy Group, which provides assessment services and reports directly to the three investor-owned utilities.

In 2017, the supplemental weatherization pilot with Green Iowa AmeriCorps was moved from the Residential Assessment program to the Residential Low Income Program. Green Iowa AmeriCorps partners with Operation Threshold in Blackhawk County to offer supplemental weatherization services for qualifying customers currently on the waiting list for the Weatherization Assistance Program.

2018 Results Compared to Plan and Budget

Total electric and natural gas savings for the Low-Income program were 4,474,809 kWh and 226,338 therms respectively. These figures represent 121 percent of total 2018 modified electric savings and 130 percent of total 2018 modified natural gas savings. Total spending for the Low-Income program was \$3,790,596, which represents 95 percent of the 2018 modified budgets.

Key Program Successes and Activities in 2018

Low-Income program highlights for 2018 include the following:

- \$2,650,000 in funding was provided to IDHR for weatherization services.

- 1,847 Energy Wise Home Savings Kits were provided by MidAmerican to local community action agencies. Kits purchased in 2018 saved an average of 446.3 kWh and 18.5 therms each.
- 4,500 Energy Wise Home Savings Kits were provided by the three utilities in 2018, which generated an estimated combined participant bill savings of \$399,550 and equates to an average participating household savings of approximately \$89.77 per year.
- 49 agency staff from five CAP agencies attended training sessions.
- Approximately 15,000 customers were added to the Home Energy Report program. Customers added included both LIHEAP recipients and customers in zip codes within MidAmerican's service territory where 70 percent or more of the population earns \$50,000 or less based on tax and census data
- 126,394 Home Energy Reports were mailed to 18,851 customers.
- The Green Iowa AmeriCorps team reached a total of 26 low-income households to perform audit and weatherization services.
- 324 low income multifamily building assessments were completed in 2018 compared to 225 in 2017.
- 24,980 direct install lighting measures accounted for 1,664,463 kWh, or 37 percent of the achieved electric savings for the program.
- 38,997 electric direct install measures and 3,455 gas direct install measures were completed as a result of an assessment totaling 1,983,469 kWh and 27,392 therms.

Key Program Challenges in 2018

- The Green Iowa AmeriCorps program relies on the CAP agencies to promote the supplemental weatherization program. This can be challenging due to turnover in staffing and lack of staff engagement.
- Consistent follow-up is required with many property owners to ensure awareness and to encourage participation beyond free assessments and direct installation measures.
- Trade allies have little awareness of the enhanced rebates offered to low income multifamily customers and therefore submit the regular prescriptive rebates instead of requesting preapproval for enhanced rebates.
- Some property owners have been hesitant to participate in the program due to uncertainty of the validity of the benefits offered, such as free direct install common area linear LEDs.

Promotion

MidAmerican promoted the Low-Income program as follows:

- MidAmerican worked jointly with Cadmus Consulting, IPL and BHE to promote the Energy Wise program to community action agencies.
- The supplemental weatherization program was promoted with flyers and word of mouth at participating CAP agencies. In addition, the program was promoted through the Home Energy Report program in targeted areas.
- MidAmerican performed direct outreach throughout the territory to further inform local low income multifamily property managers about the benefits offered through the program.

Key Activities Planned in 2019

- The Low Income program will continue in 2019 as part of MidAmerican's 2019-2023 energy efficiency plan with the following modifications:
 - The Home Energy Report program will become an education only program and the frequency will reduce from six reports a year to two reports a year.
 - MidAmerican and Green Iowa AmeriCorps are exploring "blitz" style services in areas such as Iowa City, Davenport, Des Moines and Sioux City. Green Iowa AmeriCorps would visit a targeted area for a short amount of time (1-2 weeks) and offer LED replacements or other weatherization services. MidAmerican will promote these events via direct mail campaign targeting LIHEAP recipients.
 - The Nonresidential Low Income Multifamily program will transition to the Income Qualified Multifamily Housing program in the 2019-2023 plan. This program will continue to offer free energy assessments and direct installation measures to income qualified multifamily customers. Additionally, attic insulation and attic air sealing measures were added to our direct install offerings.

O. Multifamily Housing Program

The Multifamily Housing program promotes efficiency strategies for existing multifamily properties and provides comprehensive on-site energy assessments, free low-cost efficiency measures, and a comprehensive assessment report that includes recommendations for both individual housing units and common areas. Any prescriptive or cost-effective custom energy efficiency measure is potentially eligible for rebate under the Multifamily Housing program. The Multifamily Housing program provides a comprehensive set of services and financial incentives to serve the varied needs of multifamily property owners, property managers, landlords and renters in existing buildings.

2018 Results Compared to Plan and Budget

Total electric and gas savings for the Multifamily Housing program were 9,042,108 kWh and 299,558 therms, respectively. These figures are 107 percent of total 2018 modified electric savings and 62 percent of total 2018 modified gas savings. The 2018 Multifamily Housing program increased electric savings by 435,363 kWh over 2017. Total spending for the Multifamily Housing program was \$6,042,046 which is 61 percent of the 2018 modified budgets.

Key Program Successes and Activities in 2018

- 780 assessments were completed in this program, compared to 1,361 during 2017.
- 34,529 electric direct install measures and 4,989 gas direct install measures were installed, resulting in saving 1,408,201 kWh and 32,116 therms which is 16 percent of the total achieved electric savings and 11 percent of the total natural gas savings for the program.
- 2,969 gas HVAC measures were installed, which provided 72 percent of the total

achieved natural gas savings for the program.

- 7,274 electric HVAC measures were installed, which provided 54 percent of the total achieved electric savings for the program.
- 4,444 lighting measures were installed, which provided 18 percent of the total achieved total electric savings for the program.
- Completed the Multifamily Air Infiltration pilot in September 2018. Installed attic air sealing and/or attic insulation into 67 multifamily buildings. 9 of the 67 buildings were income qualified multifamily buildings.

Key Program Challenges in 2018

- The split-incentive barrier between tenants and landlords continues to be a challenge for the multifamily program. Uninformed property owners/managers see little financial incentive to make energy efficiency improvements.
- Lower participation in assessments for 2018 compared to previous years, which impacted the amount of direct installation measures completed.

Promotion

MidAmerican promoted the Multifamily Housing program as follows:

- MidAmerican attended landlord association meetings at the following locations; Des Moines, Fort Dodge and Sioux City.
- MidAmerican held a booth at the Des Moines Landlord Expo for Iowa Real Estate Investors in October to promote the program.
- MidAmerican performed in person outreach throughout the service territory. As a result, the program captured an additional 137 assessments.

Key Activities Planned in 2019

- The Multifamily Housing program will not be offered as part of MidAmerican's 2019-2023 energy efficiency plan. Starting in 2019, all Multifamily Housing program participants will be served through the new Nonresidential Energy Solutions program included in MidAmerican's 2019-2023 plan.

P. Agricultural Assessment Program

The Agricultural Assessment program is designed to provide services and incentives to serve the specific needs of the agricultural sector. The program is delivered through the assistance of a program implementation contractor who conducts an energy assessment to help customers better understand how their agribusiness uses energy and how to use energy more efficiently to reduce monthly energy bills. Customers receive an assessment report that includes recommendations for energy-saving actions, complete with estimates of energy-savings potential and general cost estimates for each recommended action, including low- or no-cost suggestions for quick energy savings.

2018 Results Compared to Plan and Budget

Total electric and gas savings for the agriculture program were 770,635 kWh and 0 therms respectively. These figures are 880 percent of total 2018 modified electric savings and 0 percent of total 2018 modified gas savings. Total spending for the Agriculture program was \$213,937 which is 152 percent of the 2018 modified budgets.

Key Program Successes and Activities in 2018

- 23 energy assessments were conducted.
- 2,046 lighting measures were installed, which provided 98 percent of the total achieved electric savings for the program.
- 6 electric HVAC measures were installed, which provided 2 percent of the total achieved electric savings for the program.

Key Program Challenges in 2018

- The conversion rate of recommended measures continues to be a challenge. Many

natural gas projects for agriculture producers tend to be custom in nature which creates challenges with seasonal time limitations because of planting/harvesting efforts. There is a smaller window of opportunity to work with producers.

- 0 gas projects were completed. Many agriculture customers receive delivered fuel and do not have cost-effective access to natural gas provided by MidAmerican.
- The annual Farm Progress show held in Boone, Iowa had inclement weather the first day resulting in the show being cancelled for that day.

Promotion

MidAmerican promoted the Agricultural program as follows:

- Conducted targeted outreach to past participants who received recommendations in their assessment report. While these efforts were focused on electric and gas follow-up measures, all completed projects from this effort consisted of lighting measures.
- Post cards were sent to 50 MidAmerican gas customers followed by a phone call for follow up to the post card. Three assessments were realized from this effort.
- Worked with USDA Technical Service Provider to obtain referrals to the program. Two assessments were realized from this effort.

Key Activities Planned in 2019

- The Agriculture Assessment program will not be offered as part of MidAmerican's 2019-2023 energy efficiency plan. Starting in 2019, all Agribusiness program participants will be served through the new Nonresidential Energy Solutions program included in MidAmerican's 2019-2023 plan.

Q. Education Program

The Education program promotes energy efficiency education through activities organized into four general areas: awareness, trade ally support, training, and school curricula.

Awareness

Awareness is driven by MidAmerican's advertising and promotion activities that help educate MidAmerican customers about the benefits of energy efficiency. The Power in Your Hands advertising campaign continued in 2018 which promotes the Save Some Green branding utilized for EnergyAdvantage® programs. Like prior campaigns, it includes broadcast TV, cable TV, radio, print, and online advertising to communicate the importance and benefits of energy efficiency to MidAmerican customers. In 2018, messaging focused on promoting the entire portfolio through unpaid media sources such as social media, newsletters, emails and bill messaging. The goals of MidAmerican's awareness efforts include:

- Educate customers on the benefits of energy efficiency and MidAmerican's energy efficiency programs.
- Increase customer awareness of EnergyAdvantage programs.
- Present simplified and personalized energy efficiency messages in direct and serious tones to help customers understand they can act on their own and be in control of energy usage.
- Improve communication with the traditionally hard-to-reach small commercial market.
- Improve communication on program offerings to key large industrial customers.
- Help MidAmerican achieve its aggressive plan participation and savings goals.
- Increasing customer satisfaction with energy efficiency.

Trade Ally Support

Trade allies provide an important delivery channel for MidAmerican's energy efficiency programs. Trade allies include vendors, installers, wholesalers, distributors and manufacturers of a wide range of energy efficiency products and services. There are also trade-specific trade allies, including architects, engineers, mechanical and electrical contractors and others. Collectively, they support MidAmerican's energy efficiency programs through various activities, including:

- Informing customers that incentives are available for certain energy-efficient products, often as part of the sales process.
- Explaining key differences between standard and energy-efficient products.

Many of the mass-market energy efficiency programs, such as the Residential and Nonresidential Equipment programs, rely heavily on trade allies to promote and deliver the programs. These trade allies support MidAmerican's programs and use them to help increase their own sales and educate customers on the importance of energy efficiency.

The overall goals of the trade ally program include:

- Building and maintaining a strong trade ally network to increase customer awareness of and participation in MidAmerican's energy efficiency programs.
- Distributing information about energy efficiency programs to trade allies to help them meet the needs of customers.
- Coordinating and attending customer events to increase awareness and distribute information about EE programs to customers and continued outreach with trade allies attending or exhibiting at events.
- Providing training opportunities to trade allies to help promote MidAmerican's energy efficiency programs.

- Increasing trade ally satisfaction with MidAmerican and its energy efficiency programs.

Training

MidAmerican sponsors training programs for customers and trade allies to increase their knowledge of specific energy efficiency programs and systems. MidAmerican leverages its training activities by offering programs that are created and delivered by third-party providers and by offering programs in coordination with other state and regional utilities. These training programs are an integral part of MidAmerican's efforts to enhance its trade ally outreach and support.

School Curricula

Through this program, MidAmerican works with schools to integrate energy efficiency education into school curricula and extracurricular activities. MidAmerican uses email and direct mail to offer a complimentary curriculum called *eSMARTkids* to all school principals and teachers grades K-6 throughout its Iowa service territory. *eSMARTkids* is available on MidAmerican's website with specialized sections for teachers, students and parents. With the program, MidAmerican provides standards-based, age-appropriate energy efficiency educational materials lesson plans, pre/post tests, and booklets to schools in its Iowa service territory.

2018 Results Compared to Plan and Budget

There were no planned electric or gas savings in 2018. Total spending for the Education program was \$1,563,028 which is 32 percent of the 2018 modified budget.

Key Program Successes and Activities in 2018

Awareness

- MidAmerican continued its college and university sponsorship initiative. Participants included University of Iowa, Iowa State University and the University of Northern Iowa.
- MidAmerican sponsored several events including the Des Moines Arts Festival and Saturday downtown Des Moines farmers' market.
- Energy efficiency was promoted at 46 *MidAmerican Night* high school athletic events.
- Energy efficiency was promoted at 86 community and state-level events and activities, including:
 - Homebuilder Association Home & Builder Shows in Sioux City, Sheldon, Quad Cities and Des Moines
 - Iowa State Fair – Des Moines
 - Master Builders of Iowa – Des Moines
 - Educational session/lunch and learns with various trade allies throughout the service territory
- MidAmerican participates in a sponsorship with the Iowa Timberwolves basketball team which includes a student day inviting several thousand area grade school students to attend a game and receive energy efficiency materials and watch efficiency tips during the time-outs.
- An Adwords campaign highlighted residential programs and was implemented from June through October.

- MidAmerican continued to use a comprehensive marketing plan that includes traditional and nontraditional marketing strategies for individual energy efficiency programs, which include; internet advertising, social media messaging, public relations, website promotion, bill inserts, customer and employee newsletters, call center and customer office communication.

Trade Ally Support

MidAmerican continued to use a robust trade ally outreach strategy resulting in the following key successes:

- In 2018, 13 Iowa-based trade allies became Trade Ally Partners. To date, 144 Iowa-based Trade Ally Partners are representing 219 offices in the Trade Ally Network.
- Trade Ally Partners have exclusive access to a Trade Ally Partner portal to manage their profile, download the Trade Ally Partner logo, upload documents specific to their business and have easy access to rebate forms, support materials and marketing guidelines.
- 2,415 touch points were made with trade allies. Touch points include: in-person meetings, email campaigns, event outreach and phone calls.
- A Trade Ally Partner Search tool helps customers looking to make home or business energy efficiency improvements to connect to MidAmerican's Trade Ally Partners. Over 2,500 customers accessed the Trade Ally Partner Search Tool in 2018.

School Curricula

- The *eSMARTkids* offering was used to deliver a comprehensive energy efficiency outreach and education program to principals, curriculum coordinators, teachers, students and parents throughout MidAmerican's service territory. The offering

includes email and direct mail outreach, age-appropriate standards-based classroom curriculum materials, curriculum-based website, teachers' guides, and pre-/post-tests.

- 44,082 students in grades K-6 received energy efficiency education, representing 23 percent of the targeted student population.
 - 248 schools of the 901 schools which received offerings participated in the program, which represented a 28 percent school penetration rate.
 - 1,092 educators participated in the program, representing 15 percent of the 7,072 teachers contacted.
- MidAmerican continued its elementary school activity with the Science Center of Iowa by bringing *Simply Electrifying* assembly programs to elementary students in MidAmerican's Iowa service territory. *Simply Electrifying* reinforces National Science Standards and provides electric safety and energy efficiency information to students.
- MidAmerican matched membership funds for the Energy Association of Iowa Schools (EAIS) to provide targeted assistance to rural schools about energy efficiency:
 - Nine schools in MidAmerican's service territory are participating in EAIS.
 - In February, EAIS hosted a webinar titled "HVAC Checkup: 5 Things You Should Be Doing Right Now for Efficiency", 11 participants attended.
 - In April, EAIS hosted an Iowa Schools Energy Conference in Newton. This conference was a school-specific professional development and hands-on workshop in which fifty participants attended.
 - In September, EAIS hosted a school boiler maintenance workshop, hosted by a MidAmerican customer, 21 participants attended.

Key Program Challenges in 2018

Trade Ally Support

- The fall trade ally meetings were postponed due to refiling a new plan and having information regarding programs and rebates available to trade allies. These meetings are rescheduled to the spring of 2019.

School Curricula

- High participation for the school outreach program continued. School outreach communications were reduced to help manage spending for the program.

Key Activities Planned in 2019

- The Education program will continue in 2019 as part of MidAmerican's 2019-2023 energy efficiency plan with the following modifications:
 - MidAmerican will not continue its college and university sponsorship initiative.
 - Online fillable applications will be introduced to trade allies for all prescriptive measures included in the residential and nonresidential equipment programs.

R. Trees Program

MidAmerican's trees programs encourage tree planting through projects combining customer education and financial grants. MidAmerican's trees programs include: *Plant Some Shade*, *Trees for Kids/Trees for Teens*, and *Trees Please!* The *Plant Some Shade* program allows residential customers to order trees at a low cost, subsidized by MidAmerican Plan funding. Financial grants via the *Trees Please!* program are made directly to communities located in MidAmerican's Iowa service territory. Additionally, MidAmerican helps fund the Iowa Department of Natural Resources' *Trees for Kids/Trees for Teens* programs.

2018 Results Compared to Plan and Budget

There were no planned electric or gas savings in 2018. Total spending for the Trees program was \$484,686 which is 81 percent of the 2018 modified budget.

Key Program Successes and Activities in 2018

- 73 communities returned complete *Trees Please!* program applications and all 73 received financial grants. The funding grants received by the 73 communities totaled \$220,682.
- With MidAmerican's support of the IDNR's *Trees for Kids/Trees for Teens* program, grant applications were sent to all Iowa principals and superintendents twice a year. 16 *Trees for Kids* grants totaling \$52,637 were provided to schools which planted 578 landscape trees with 984 youth. Additionally, 62 packets containing 9,050 tree seedlings were given to schools and communities across the state for Earth Day celebrations.
- There were 12 *Plant Some Shade* events in 2018. Spring events were held in Cedar Rapids, Council Bluffs, Davenport, Des Moines, Fort Dodge, Indianola, Iowa City

and Waterloo. Fall events were held in Des Moines, Waukee, Grimes, and Sioux City. In all, 2,759 trees were distributed to residential customers.

- MidAmerican's forestry department planted seven trees in seven communities served by MidAmerican in conjunction with Arbor Day celebrations.
- MidAmerican received the Tree Line USA award by the National Arbor Day Society. Tree Line USA is sponsored by The National Arbor Day Foundation in cooperation with the National Association of State Foresters. This award recognizes public and private utilities across the nation that implements tree management practices that protect and enhance America's urban forests.

Key Program Challenges in 2018

- The *Trees Please!* program is using electronic communications with community chairpersons. Contact information was out of date and direct communication was made to all communities to ensure applications and documentation were received to allow communities to be eligible and submit grant applications.

Promotion

MidAmerican promoted the Tree programs as follows:

- *Trees Please!* participation signs advertise communities' participation in the *Trees Please!* program. These signs are designed to be used at the cities entrances or on poles where they have planted their trees.
- *Trees Please!* and *Plant Some Shade* events were promoted at Arbor Day celebrations.
- Articles promoting *Plant Some Shade* events ran in MidAmerican's employee and customer newsletters and emails in the spring and fall.

- Press releases were used for both *Trees Please!* and *Plant Some Shade* programs and were picked up in local papers.
- Social media was used to promote tree applications and *Plant Some Shade* events.

Key Activities Planned in 2019

- The Trees program will continue in 2019 as part of MidAmerican's 2019-2023 energy efficiency plan with the following modifications:
 - The *Plant Some Shade* and *Trees for Kids/Teens* program will be discontinued.
 - An online application process will be implemented for *Trees Please!* applicants.